The RIEGL VUX-SYS is a complete airborne laser scanning system solution of low weight and compact size for flexible use in UAS/UAV/RPAS, helicopter, gyrocopter and ultra-light aircraft installations. The system comprises the RIEGL VUX-1 airborne laser scanner, an IMU/GNSS system and a control unit.

The excellent measurement performance of the VUX-1 in combination with a precise fiber-optic gyroscope and GPS/GLONASS receiver results in survey grade measurement accuracy over its full range of applications.

Dedicated interfaces of the VUX-SYS enable full control as well as system status feedback for low bandwidth radio links in UAS/UAV/RPAS systems.

Additionally, the control unit contains interfaces for triggering up to four digital cameras. Precise time stamps of the camera's release-events are stored in the raw scan data stream enabling subsequent combination of point cloud data and imagery.

Typical applications include:
- Corridor Mapping: Power Line, Railway Track, and Pipeline Inspection
- Terrain and Canyon Mapping
- Surveying of Urban Environments
- Topography in Open-Cast Mining
- Precision Agriculture
- Archaeology and Cultural Heritage Documentation
- Construction-Site Monitoring
RIEGL VUX®-SYS Block Diagram

RIEGL VUX-SYS remote control setup

RIEGL VUX-SYS conventional control setup

RIEGL VUX®-SYS Mechanical Drawings

RIEGL VUX-SYS System Components:
- RIEGL VUX-1 UAS LiDAR sensor
- IMU/GNSS unit
- GNSS antenna
- control unit
- up to 4 cameras (optional)
- connecting cables

Technical Data RIEGL VUX®-SYS

Scanner Performance (for details refer to the VUX-1 data sheet)
- Minimum Range
  - 3 m
  - 10 m
  - 50 m
- Accuracy
  - up to 550 kHz
  - up to 500,000 meas./sec. (@ 550 kHz PRR & 330° FOV)
- Precision
  - up to 330° (full range measurement performance)
  - 10 - 200 revolutions/sec, equivalent to 10 - 200 scans/sec
  - 0.001°

Data Interfaces
- Configuration
- Scan Data Output
- GNSS Interface
- Camera

IMU & GNSS
- IMU Accuracy
  - Roll, Pitch
  - Heading
- IMU Sampling Rate
- Position Accuracy (typ.)
  - 0.015°
  - 0.035°
  - 200 Hz
  - 0.05 m - 0.3 m